Onsite Transfer of Radioactive Material: Working Group - Status

Presented by

Erich K. Opperman

Radioactive Material Transportation Pgm

Westinghouse Savannah River Company

(phone: 803-952-8176, email: erich.opperman@srs.com)

to the

Packaging Management Council

Biloxi, MI

June 25, 2001

Onsite Working Group

Topics

- Charter/Members
- Past Work
- Current Issues
  - Inconsistent implementation of 460.1A at sites.
  - Will compliance with 460.1A satisfy all requirements of 10 CFR 830?
- Summary

Working Group Charter

Chartered by National Transportation Programs Packaging Management Council in 09/99. Ashok Kapoor, DOE-Al, NTP

Objective "Develop recommendations to bring uniformity to onsite packaging programs performed to DOE 460.1A. Central to this is an understanding the "methodology" used to demonstrate "equivalence". Uniformity in equivalence methodology should result in package sharing between Sites, reduced documentation costs, and improved onsite-packaging safety."

Scope Establish an information baseline on onsite packaging programs at each Site. Evaluate benefits of bringing uniformity to onsite programs.

Onsite Working Group Members

NTP Sponsor: Ashok Kapoor, DOE-AL

- Dennis Barrett, LLNL, barrett2@llnl.gov
- Michael Cassady, SNL-A, mpcassa@sandia.gov
- Rick Emmett, Consultant, rwe@mindspring.com
- Mark Hawk, ORNL, hawkmb@ornl.gov - (PMC Lead)
- Jim Johnston, LANL, hmconslt@lanl.gov
- Gene Kanemoto, INEEL, gkk@inel.gov
- Kenneth Lenarcic, RFETS, Kenneth.Lenarcic@rfets.gov
- Dennis McCall, Hanford, dennis_mccall@gtsduratek.com
- Dave Mccollum, LANL, mccollum@lanl.gov

Onsite Working Group Members

NTP Sponsor: Ashok Kapoor, DOE-AL

- Erich Opperman, SRS, erich.opperman@srs.gov - (chair)
- Bill Rhyne, Consultant, wrrhyne@earthlink.net
- BobStephenson,PANTEX,BSTEPHEN@pantex.com

Status - Data Collection From Each Site (March 2000)

- Contact person.
- Site Information - describe ability to provide access control.
- Is 460.1A in site contract?
- How are onsite safety requirements implemented?
- Define packaging and transportation organization & number of people working onsite issues.
- How are individual onsite package designs documented?
- Describe your package approval process.
- How many Non-DOT packages are currently approved or will be needed?
- How many 1) Type B, 2) Type A, and 3) LSA?
- Describe methodology for demonstrating equivalent safety or other means of assuring safety.

Results from Data Collection - March 2000

- **460.1A in site contract**: 5-yes, 2-no - all work to DOT equivalence
- **People in P&T**: 15-40 people in P&T Org - 5-25% onsite
- **Package documentation**: Generally for each package design
- **Number of non-DOT Type B <u>Designs</u>**: 1 to 30, average number 17
- **Approach to DOT equivalence - general trends:**
  - All sites have Transportation Safety Documents (TSD)
  - <u>C</u>ontainment, <u>c</u>ontrols, <u>c</u>ommunications - 3 C's
  - Graded approach: Hazard, isotopes, location, route, frequency, weather, time
  - Risk assessment and package evaluation
  - Criteria - whole body dose limit 5 rem (2 sites)
- All sites working to DOT Equivalence - Methods vary

Current Onsite Issues - June 2001

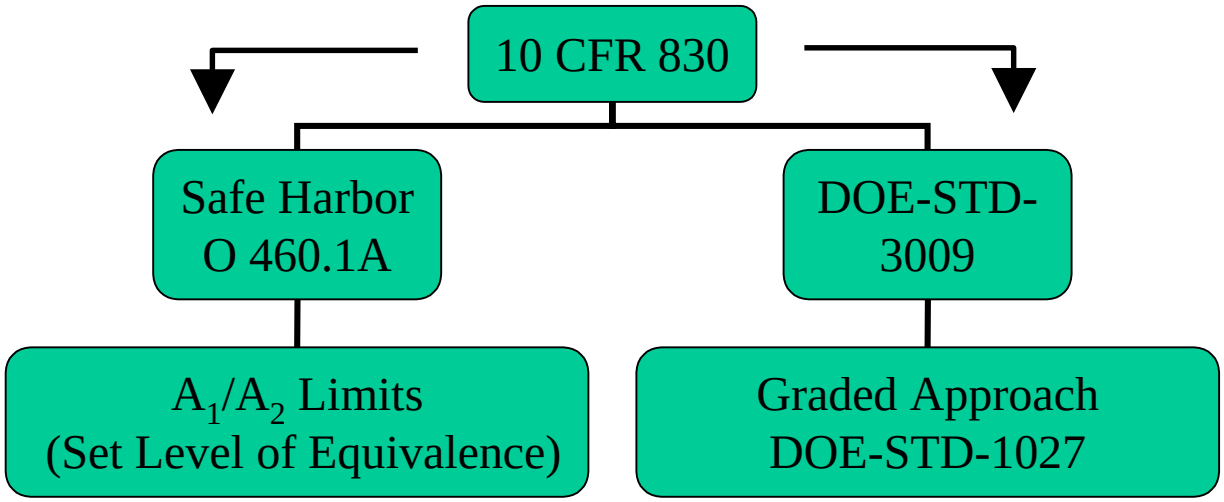
- Uncertainty with 10 CFR 830 Subpart B Safety Basis Requirements for transportation activities on DOE sites.
  - Requires a graded approach (method in DOE-STD 1027 - 92)
  - Provides a safe-harbor using 460.1A
- Inconsistency between sites in implementation of 460.1A.
  - Methods for complying with 460.1A may need clarification
- Bigger Question: How do we comply with 10 CFR 830 and 460.1A?
  - Nuclear facility safety and transportation safety have different regulatory origins, and terminology.

10 CFR 830 Compliance – Dilemma for Onsite Transfers

10 CFR 830 –

- Includes onsite transfers in the definition of a nuclear facility
- **Impact –** The Rule applies comprehensively to onsite transfers and requires a “graded approach”
- **Problem –** Compliance with 460.1A will not assure implementation of a graded approach – in fact it (compliance) is likely to assure the nuclear hazard and consequently, the nuclear risk will be overestimated for onsite transfers.

10 CFR 830 Compliance Paths



?

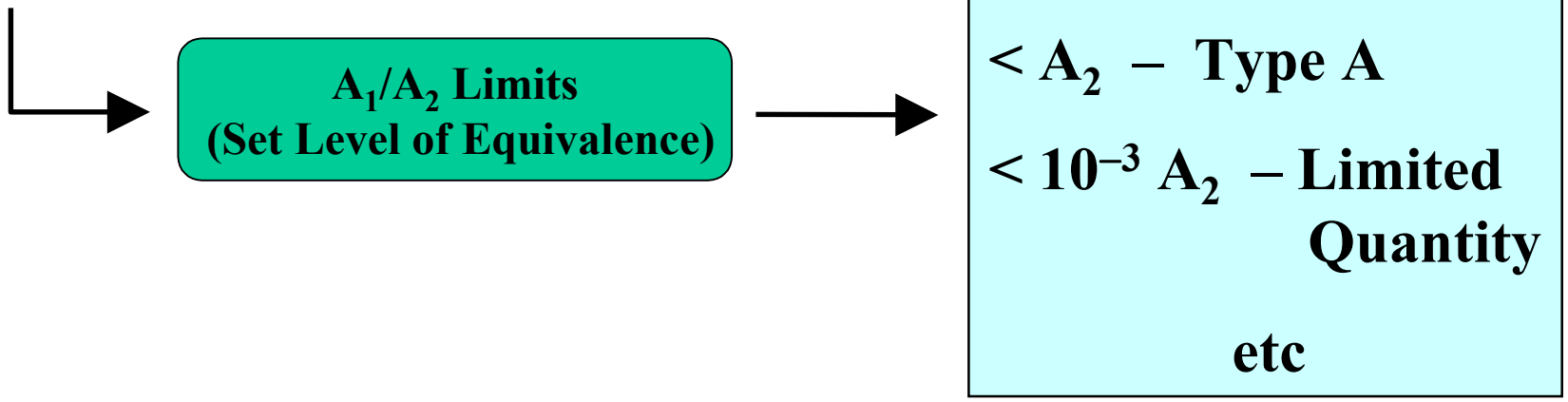
*A_1/A_2 limits are the **result** of a graded approach "built into" the Transportation Regulations

460.1A Compliance Path

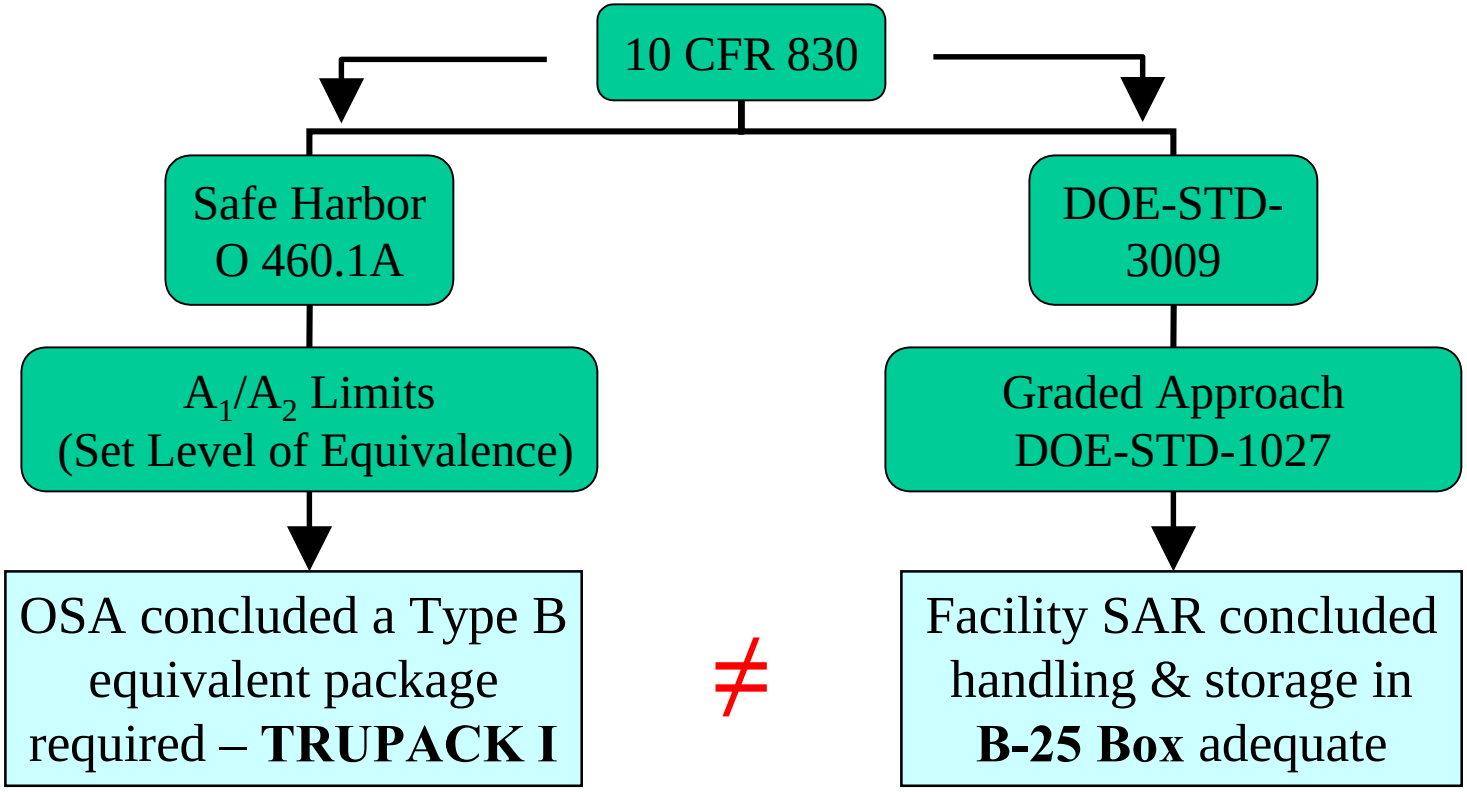
To what DOT/NRC requirements must the DOE contractor show equivalence?

Onsite Package = **?**

How many A_2s in Package **?**



SRS Contact-Handled TRU



DOT Safety - Our Equivalence Target- Is It What We Need for Onsite?

" The...effective dose equivalent to a person exposed in the vicinity of a transport package following an accident should not exceed the annual dose limit for radiation workers, namely 50 mSv (5 rem)." (IAEA Safety Series 7, 1990)

"…this link to the annual dose limit for workers is no longer valid for potential exposures." (IAEA ST-2, App. I – Draft, 2000)

IMPACT – It is conservative to impose a 5 rem dose limit on potential exposures of facility operators and co-located workers. And even conservative by factor of 5 for the Public.

Summary

- Inconsistent implementation of 460.1A is symptomatic of a problem with the order
- Compliance with 460.1A may not be sufficient to comply with 10 CFR 830
  - Evaluation of the application of equivalence to DOT has been called into question on DOE sites
- Dilemma - Safe Harbor leads us to a Trupact I, while site facility approach leads to an B-25 (not an isolated case)
  - Example of the effect of the large conservatism that is inherent in applying DOT equivalence onsite